

# KAVLI INSTITUTE FOR THEORETICAL PHYSICS

Presents

## *The Fortieth KITP Public Lecture*

Sponsored by Friends of KITP

### Maria Spiropulu

## The Universe in Collisions

The LHC (Large Hadron Collider) is the proton-proton supercollider built in a 27 km tunnel underneath the Franco-Swiss border near Geneva that had first beams circulating on Sept 10 2008. The LHC and its two-general purpose experiments ("ATLAS" and "CMS") present us with unprecedented challenges in terms of complexity and size in the field of high-energy physics. This lecture will cover the technology and physics of the most violent events ever to be observed in the laboratory, the challenges of extracting new physics from a billion collisions per second, and the path from detection to discoveries that will address the most puzzling questions on the composition and dynamics of the Universe.

### About the Speaker

MARIA SPIROPULU is an experimental particle physicist. Born and educated in Greece, she became interested in experimental physics early on and worked in international laboratories in Europe (BESSY, CERN) as an undergraduate. She moved to the US in 1993 to pursue her Ph.D. at the Collider Detector at Fermilab with Harvard University. She has worked on silicon sensors, calorimetry, trigger and data acquisition and on searches for physics beyond the standard model. She used the blind data analysis method for the first time in hadron collider data. She developed and implemented background determination methodologies and algorithms (such as the Z-boson "standard candle" and the "W/Z standard candle transfer" for searches) that have been used at Fermilab's experiments and are going to be employed by the experiments at the LHC. By analyzing the debris of very high energy particle collisions, she is looking to find whether extra dimensions or supersymmetric particles are relevant to the physics that connects the high energy scale of gravity and unification with the scale of elementary particle masses. She is the recipient of the Enrico Fermi Fellowship and Compton Lectureship at the University of Chicago. She lived in the Chicago area since 1994 and moved in 2004 to Geneva, Switzerland with a staff position at CERN's Physics Department to continue her research at the highest energy experiments at the Large Hadron Collider. During the years 2005-08 she lead the the search and discovery program of the CMS experiment. In 2008 she was elected Fellow of the American Association for the Advancement of Science.

**Wednesday, May 13, 2009**

**8:00 PM (Reserved seats held until 7:50 PM)**

*Kavli Institute for Theoretical Physics, Main Seminar Room*



**Admission is Free**  
**Seating is by RSVP only**

*Please e-mail:*

**events@kitp.ucsb.edu**

*or call*

**(805) 893-4111**

*by May 8, 2009.*

**Reserved seats are held  
until 7:50 PM**

*To make special arrangements to  
accommodate a disability, call the  
KITP at the number above.*

### LOT 10 PARKING

From the roundabout at Hwy 217, turn right onto Mesa Rd, merge into left lane, turn left at the first light into Lot 10 parking structure. **PARK, BUY a \$3 permit** from the dispenser (near the elevator and stairs), **DISPLAY PERMIT** on dashboard. The KITP is right next door.

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its many friends in the community.*

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